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March 29, 1949

COPY NO. 18

ATOMIC ENERGY COMMISSION

RESUME OF RADIOLOGICAL SURVEY OF ENIWETOK ATOLL

Note by the Secretary

1. The attached memorandum by the Director of Military Application concerning the radiological safety of Eniwetok Atoll is circulated for the information of the Commission.

2. At Meeting 251 on March 9, the Commission was given a preliminary oral report on the results of the radiological survey.

ROY B. SNAPP

Secretary

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ATOMIC ENERGY COMMISSION

RESUME OF RADIOLOGICAL SURVEY OF ENIWETOK ATOLL

Memorandum by Director of Military Application

1. A survey party, consisting of Colonel James P. Cooney, Dr. Karl Z. Morgan, Dr. Carl C. Gamertsfelder and Dr. Harry W. Whipple, visited the Atomic Energy Commission Proving Ground, Eniwetok Atoll, during the period of February 14 through February 21, 1949, for the purpose of conducting a radiological survey of the islands which were used for the 1948 bomb tests.

2. Radiological surveys were made on Runit, Aomon, Biijiri, Rojoa and Engebi Islands.

3. The results of this survey are summarized as follows:

a. The external radiological hazard on all test islands is minimal and can be easily handled.

b. Practically all of the iron scattered about the islands is radioactive due to neutron capture and/or contamination with fission products. This iron will be collected and dumped on the reef on the oceanside of the Atoll.

c. At present, the soil on all of the islands is well stabilized and, therefore, the internal radiation hazard is minimal. However, when the top crust of the soil is disturbed, there is a definite internal hazard due to dust formation. If a detonation from a tower such as occurred at Eniwetok occurred in an area such as New York City the residual radiation hazard would not present a similar problem due to the fact that the ball of fire would probably come in contact with concrete rather than unprotected soil. Therefore, considerably less fission products would be trapped. However, if this were a direct ground burst, it would completely destroy the concrete by blast and then the problem would be similar. We are attempting to make this island absolutely safe for workers. We plan that it will be as safe for them to work there as it would in any atomic energy plant. If necessary a company of troops could camp on Eniwetok now and be subjected to a very negligible radiation hazard. However, it would be unwise to have children living in such an area and playing in the dust. The radioactive iron is a hazard only if handled with bare hands for a long period of time. It is being moved not primarily with the idea of the hazard it presents to people working in this area, but it would interfere with technical measurements which must be made during the future test.

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4. The solution to this problem may be resolved by:

a. Removing the top soil, roughly 500 yards from the crater, and placing it into the crater area and then stabilizing this material with uncontaminated soil. If this operation must be performed, it will be necessary for the personnel to wear respirators while working. Wearing such equipment in the tropics is extremely undesirable, and the efficiency of the operating group will be very low. Wetting down the soil for this type of operation was attempted and proved unsatisfactory.

b. The ideal solution, if it can be accomplished, would be to stabilize the soil by covering it over with coral carried in from the lagoon. Sufficient coral to stabilize the soil is all that is necessary. It should require only from six to nine inches of well-packed coral to accomplish this mission. The roads must also be stabilized, as well as the camp site for the workers on Engebi. The Holmes and Narver Construction Company, in conjunction with the Los Alamos Scientific Laboratory, at present is making a study of the feasibility of accomplishing this solution.

5. Stabilization of the soil at Rojoa, where a construction camp will be located, will not be required. A monitor from the Los Alamos Scientific Laboratory is now in Eniwetok to supervise the radiological hazards. The monitor will be present at all times during the construction phases of this project.

6. The construction workers were given appropriate instructions to govern their operations on the islands.

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